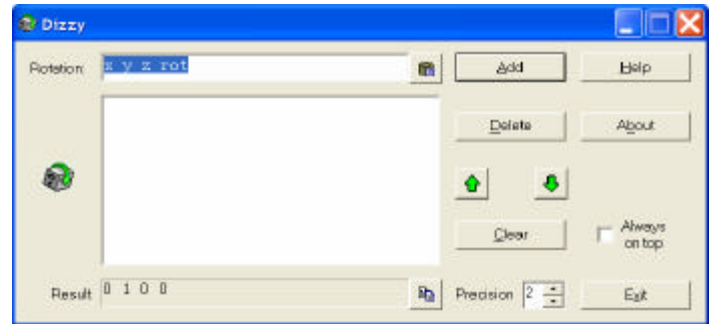


Dizzy Help

This help page describes the functions of the controls in the main Dizzy dialog. For more detailed information on how to actually use Dizzy, please see the usage instructions. To see what's new in this version, take a look at the change history.



Input

Write the rotations that you want to merge into this box. You can only write correctly formatted numbers in this box. If you find that the box doesn't accept your input, then you are not writing a number in an acceptable format. Also, the box will only accept four numbers (one for each component of an axis-angle rotation). Well-formatted numbers take the following form:

`[-] [digits] [. digits] [{ E | e } [-] digits]`

At least one of the first two sets of digits must be present if the exponent is to appear.

Paste

This button pastes the contents of the clipboard into the input box.

Add

Pressing this button (or hitting Enter) will add the data in the input box to the list. If an item in the list is selected, the input is added after the selected item. Otherwise, it is added at the end. Only correctly formatted axis-angle rotations will be added to the list. If the input is not correct, a warning will appear.

Rotation List

This is the list of rotations that are to be merged. The rotations are merged in order, starting with the first in the list.

Delete

This button will remove the selected item from the list.

Up/Down

These buttons move the selected item up or down the list.

Clear

This button will clear the list of all entries.

Result

This is where the resultant rotation will appear.

Precision

You can select the maximum number of decimal places that the result will be displayed at using this box. The minimum is 0, the maximum is 9. Note that this is the number of decimal places, not significant digits. This value is saved between uses of Dizzy.

Copy

This button copies the text from the result box onto the clipboard.

Always on top

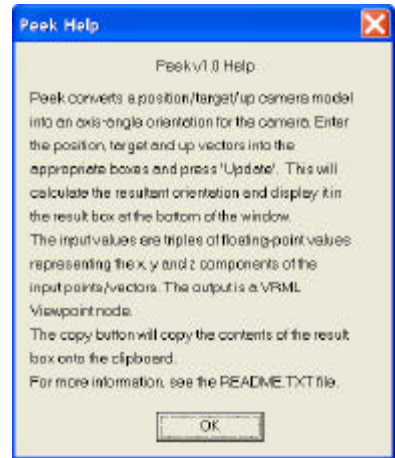
If this box is checked, Dizzy will permanently float above all other windows. If not, it will go into the background like any normal window. This value is saved between uses of Dizzy.



Peek - Orientation Calculator

General Information and Help

January 26, 1999



INTRODUCTION

Thanks for downloading Peek, from Vapour Technology. Peek is an orientation calculator that converts a position/target/up camera model into an axis-angle camera model. While this is useful for calculating camera orientations, you can also use it to orient any object. Peek is aimed at VRML applications, though you may find it useful in OpenGL or any graphics system with a right-handed coordinate system.

Peek was inspired by a similar Win32 console app called 'Orient' by Steve Chenney. We decided to take the concept and rewrite it into a user-friendly application. We hope you find it useful!

INSTALLATION

To install Peek on your system, run the executable 'peek_install.exe'. Select the directory you wish to install to, and the rest is done automatically. If you have downloaded the file 'peek10.zip', you need to manually extract it into a directory of your choice instead. Unfortunately, you have to add your own icon to the Start Menu, but such is life.

USAGE

Peek converts a position/target/up camera model into an axis-angle style orientation for the camera. To do this, enter the position of the camera, the target point and the up direction into the appropriate boxes and press the 'Update' button (or Enter). The normalised orientation for the camera will then be calculated and displayed at the bottom of the window, ready to be copied into your VRML file.

The input data is entered as three sets of three floating-point values, such as:

1.1 0.4 5.6

The three values are the x, y and z components of the points/vectors as appropriate.

The output is a complete VRML Viewpoint node. Using the copy button, you can copy this to the clipboard and paste it directly into your VRML files. If you want the data for other applications, such as OpenGL, the orientation field in the output is an axis/angle rotation value. The first three fields define an axis, and the last is a rotation in radians about this axis.

CONTACT INFORMATION

Vapour Technology can be reached on the web at <http://www.vapourtech.com>.

For bug reports and enquiries about this product, email support@vapourtech.com.

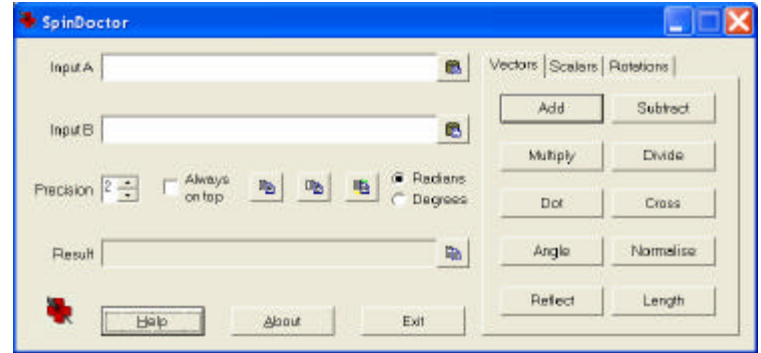
SpinDoctor Help

The main SpinDoctor dialog contains a number of input boxes, and the output box. It also contains a number of buttons for copying and moving the result around, and also a number of tabs which contain the operations that you can perform. The controls in the main window are explained below. For more information on the controls shown in the operations pane, click one of the following links:

[Vector Tab](#)

[Scalar Tab](#)

[Rotation Tab](#)



Alternatively, you can take a look at a full list of operations available. You can also learn about the data types that SpinDoctor uses.

Input A

This is the first input box. Write the first value used in your calculation in here. Some operations only use this box. You can only write correctly formatted numbers in this box. If you find that the box doesn't accept your input, then you are not writing a number in an acceptable format. Also, the box will only accept up to ten numbers. Only four are used by the program, but ten are allowed in the box for ease of use. Well-formatted numbers take the following form:

`[-] [digits] [. digits] [{ E | e } [-] digits]`

At least one of the first two sets of digits must be present if the exponent is to appear.

Input B

This is the second input box. Write the second value used in your calculation in here. You can only write correctly formatted numbers in this box, in the same format as for the first input box shown above.

Result Box

This is where the results of your calculations will appear.

Precision

You can select the maximum number of decimal places that your results will be displayed at using this box. The minimum is 0, the maximum is 9. Note that this is the number of decimal places, not significant digits. This value is saved between uses of SpinDoctor.

Paste

These buttons paste the contents of the clipboard into the appropriate input box.

Copy to Clipboard

This button copies the text from the result box onto the clipboard.

Copy to...

These two buttons copy the text from the result box into Input A or B respectively.

Swap

This button swaps the contents of the two input boxes.

Radians / Degrees

These two radio buttons select the angle type that is used in various operations. Only one can be selected at a time. The operations affected by this setting are:

Angle
Convert
Sine
Cosine
Tangent

The Angle and Convert operations output their result in either radians or degrees, depending on the setting, and the three trigonometric functions use the setting to determine the type of the input. See the detailed description of the operation for more information on how the setting of the angle type affects the result. This value is saved between uses of SpinDoctor.

Always on top

If this box is checked, SpinDoctor will permanently float above all other windows. If not, it will go into the background like any normal window. This value is saved between uses of SpinDoctor.

Vector Tab

This tab contains operations that can be applied to 3D vectors.

Add

This button adds two scalars, vectors or rotations. For more information see the description of Add

Subtract

This button subtracts two scalars, vectors or rotations. For more information see the description of Subtract

Multiply

This button multiplies two scalars or vectors. For more information see the description of Multiply

Divide

This button divides two scalars or vectors. For more information see the description of Divide

Dot

This button takes the dot product of two vectors. For more information see the description of Dot Product

Cross

This button takes the cross product of two vectors. For more information see the description of Cross Product

Angle

This button calculates the angle between two vectors. For more information see the description of Angle

Normalise

This button makes the length of the vector in A equal to 1. If A is a rotation, it's rotation axis (the first three components) are normalised instead. For more information see the description of Normalise

Reflect

This button reflects the vector in A in any axis. Select axes to reflect in by checking boxes in the Reflect dialog box. For more information see the description of Reflect

Length

This button calculates the length of the vector in A. For more information see the description of Length

Scalar Tab

This tab contains operations that can be applied to scalar values.

Add

This button adds two scalars, vectors or rotations. For more information see the description of Add

Subtract

This button subtracts two scalars, vectors or rotations. For more information see the description of Subtract

Multiply

This button multiplies two scalars or vectors. For more information see the description of Multiply

Divide

This button divides two scalars or vectors. For more information see the description of Divide

Convert

This button converts the scalar value in A into degrees or radians, depending on the setting of the angle type in the main dialog. It is assumed that the input value is in the other angle type. For more information see the description of Convert

Pi

This button copies the value of Pi into the result box.

Sin

This button calculates the sine of the value in A. If the Invert box is checked, this button performs an inverse sine. The angle type of the value in A is set using the angle type radio buttons in the main dialog. For more information see the description of Sine

Cos

This button calculates the cosine of the value in A. If the Invert box is checked, this button performs an inverse cosine. The angle type of the value in A is set using the angle type radio buttons in the main dialog. For more information see the description of Cosine

Tan

This button calculates the tangent of the value in A. If the Invert box is checked, this button performs an inverse tangent. The angle type of the value in A is set using the angle type radio buttons in the main dialog. For more information see the description of Tangent

Invert

This button sets whether normal or inverse trigonometric functions are performed when the Sine, Cosine and Tangent buttons are pressed.

Rotation Tab

This tab contains operations that can be applied to axis-angle rotations.

Add

This button adds two scalars, vectors or rotations. For more information see the description of Add

Subtract

This button subtracts two scalars, vectors or rotations. For more information see the description of Subtract

Normalise

This button makes the length of the vector in A equal to 1. If A is a rotation, it's rotation axis (the first three components) are normalised instead. For more information see the description of Normalise

Invert

This button inverts the rotation in A. For more information, see the description of Invert

Rotate Vector

This button uses one rotation and one vector. The two inputs can be in either input box, the order is not important. The vector will be rotated by the value of the rotation. For more information, see the description of Rotate Vector

Data Types

SpinDoctor can operate upon three different types of data, described here:

Scalar

This is a single number, representing a single scalar value, like a length or an angle.

Examples:

1
3.2
1.23e-4

3D Vector

This is a set of three numbers, representing components of a 3D vector. The components are entered in the order X, Y then Z..

Examples:

1 2 3
9.8 10.2 11.3

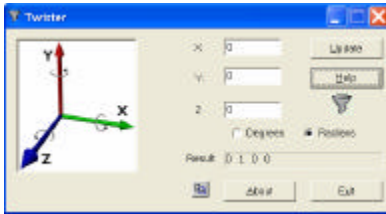
3.23e-4 2.3e-3 1e-2

Axis-Angle Rotation

This is a set of four numbers, which define a 3D axis-angle rotation. The first three numbers are a 3D vector, as defined above, which define the axis of rotation. The last number is a value in radians to rotate around that vector. As SpinDoctor uses a right-handed coordinate system, positive rotations go in a CLOCKWISE direction when looking down the axis away from the origin.

Examples:

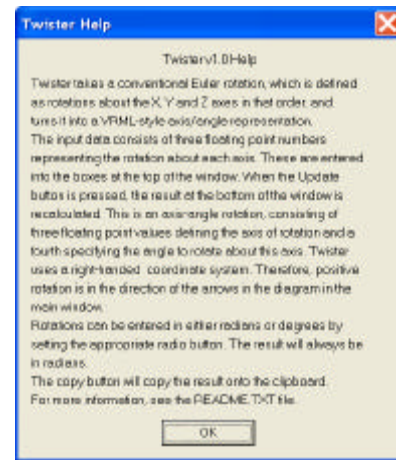
0 0 1 1.57
2.3 4.3 5.6 1
9 7 -2 -1.09



Twister - Rotation Converter

General Information and Help

January 26, 1999



INTRODUCTION

Thanks for downloading Twister, from Vapour Technology. Twister is a rotation calculator that converts an Euler rotation (ie components about the three x y and z axes) into an axis-angle representation. It is intended for use with VRML, but feel free to use it for other applications if you feel the need. It may be useful for OpenGL and other graphics applications that use a right-handed coordinate system.

Twister was inspired by a couple of enquiries by content developers to myself and others. We hope you find it useful!

INSTALLATION

To install Twister on your system, run the executable 'twister_install.exe'. Select the directory you wish to install to, and the rest is done automatically. If you have downloaded the file 'twistr10.zip', you need to manually extract it into a directory of your choice instead. Unfortunately, you have to add your own icon to the Start Menu, but such is life.

USAGE

Twister converts a three-axis style Euler rotation into a axis-angle style rotation. An Euler rotation is defined by three values, each one a rotation about the X Y or Z axis. Twister assumes that the three values rotate around the X Y and Z axes respectively. Also, the rotation calculations are done in this order.

The input is three floating-point values representing the rotations around each axis. These are entered into the appropriate boxes at the top of the window. If an invalid value is entered, the box is reset to zero on update. To update the result, press the Update button or hit Enter. The result at the bottom of the window will be recalculated and displayed.

The input can be entered in either radians or degrees by setting the appropriate choice on the radio buttons. If you enter a number, and switch to the other angle measurement, the numbers already entered will be converted to the current measure. So, if you enter 180 degrees and press the 'radians' button, the number will be converted to 3.14 radians.

The output is a VRML-style axis-angle orientation. The first three values define an axis about which to rotate, and the last value is the amount (in radians) to rotate about this axis. This is the correct format to be pasted directly into a VRML file. This can be done using the copy button to copy the result directly onto the clipboard.

CONTACT INFORMATION

Vapour Technology can be reached on the web at <http://www.vapourtech.com>.

For bug reports and enquiries about this product, email support@vapourtech.com.

Peek - Orientation Calculator
(other licenses are similar)

Legal Information and License

January 26, 1999

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